

## **Syllabus**

**Course Number: CS468**

**Course Title: Advanced Unix**

### **Course Description:**

**CS 468 – ADVANCED UNIX (3).** Expands upon knowledge of UNIX systems. Introduces system administration tasks, including software installation, system configuration, and managing user accounts. Studies risks faced by computer systems and UNIX security mechanisms. Also explores UNIX system programming including signals and interprocess communication.

### **Prerequisite Courses:**

#### **CS465 – Unix Operating System**

In order to successfully participate in this course, students are expected to have completed ALL of the course prerequisites. Please note that the pre-requisites for CS465 are CS210 and CS310 OR CS361 and CS362. Therefore, you need to have already completed all of these listed courses (or their equivalents) before taking CS468. Necessary skills from the above courses are:

1. Practice with problem definition, solution construction and algorithmic development, top-down design techniques, coding, and debugging (*CS210* or *CS361*).
2. Familiarity with control structures used for decisions and iteration, modular code design with functions, and proper parameter passing, using both pass-by-value and pass-by-reference (*CS210* or *CS361*).
3. Familiarity with basic data structures, including files, arrays and records (*CS310* or *CS362*).
4. Detailed understanding of the standard UNIX utilities, including vi, grep, awk, input and output redirection, and pipes (*CS465*).
5. Detailed understanding of the UNIX file system, user groups, and file system permissions (*CS465*).
6. Detailed understanding of the Bourne and Korn shells, including shell scripting with variables and control structures (*CS465*).
7. Detailed understanding of the C/C++ programming tools in the UNIX environment, including cc, dbx, and make (*CS465*).

8. Basic understanding of system administration tasks on a UNIX system (*CS465*).

## Course Overview

The pre-requisite course, CS465 Unix, covered Unix from a user's perspective. This course covers Unix system management and administration and performing Unix system programming.

## Course Outcomes:

Upon completion of this course, learners should be able to:

1. Detail the tasks performed by a UNIX system administrator.
2. Install and configure a UNIX system.
3. Manage UNIX users, file systems and devices using root powers.
4. Access UNIX file management and process management functions via system calls.
5. Configure a UNIX system for networking.
6. Use UNIX security mechanisms to protect a UNIX system.

## Course Materials:

### Required Texts:

1. Glass, Graham. (2003). *UNIX for Programmers & Users (3rd edition)*. Prentice Hall/Pearson; ISBN: 0-13-046553-4.  
(NOTE: This was also the required text in CS465)
2. Nemeth, Evi and Snyder, Garth, Seebass, Scott, and Hein, Trent (2003). *Unix System Administration Handbook (3rd edition)*. Prentice Hall; ISBN 0-13-020601-6.

### Technology Tools:

Access to a PC-compatible computer system, running Windows with secure shell (**ssh**) or **telnet** access to the internet. NOTE: You must have administrator privileges on this PC.

### Optional Materials:

- Robbins, Arnold. (2005). *UNIX in a nutshell: A Desktop Quick Reference covers GNU/Linux, Mac OS X, and Solaris (4th edition)*. Sebastopol, CA: O'Reilly. ISBN 10: 0-596-10029-9 or ISBN 13: 9780596100292.

## Pre-Assignment:

- 1) Read the following in your textbooks.
  - Unix System Administration Handbook (USAH), Chapters 1-3
  - Unix for Programmers and Users (UPU), pp 630 – 633

- 2) Be prepared to **ask questions** on unclear areas and to **respond to questions** about information in the assigned reading.

**Online Format:** Sign on to [worldclass.regis.edu](http://worldclass.regis.edu) and become familiar with the course navigation of the Web Curriculum. Complete assignments above.

**Classroom-based Format:** Complete assignments above by the first night of class.



## Course Assignments and Activities:

	Topics	Readings (USAH = Unix System Administration Handbook UPU = Unix for Programmers and Users)	Activities Assignments and Associated Points*
1	<ul style="list-style-type: none"> <li>System Admin Overview &amp; Root Powers</li> <li>Booting &amp; Shutting Down Linux</li> </ul>	USAH: Ch 1 and Ch 3 UPU: pp 630 USAH: Ch 2 UPU: pp 631– 633	Participation in Discussions - 10% for entire course Hmwk #1 - 8%
2	<ul style="list-style-type: none"> <li>Installing Linux</li> <li>Managing Users</li> </ul>	USAH: Ch 6 UPU: pp 638 – 640	Participation in Discussions Hmwk #2 - 8%
3	<ul style="list-style-type: none"> <li>Managing the File System</li> <li>Systems Programming - File Management</li> </ul>	USAH: Ch 5 UPU: pp 572–584, 634–638 UPU: pp 431–471, 606–622	Participation in Discussions Hmwk #3 - 8%
4	<ul style="list-style-type: none"> <li>Managing Processes</li> </ul>	USAH: Ch 4 and Ch 9 UPU: pp 584 – 600	Participation in Discussions Midterm Exam - 20%
5	<ul style="list-style-type: none"> <li>Systems Programming - Process Management</li> </ul>	UPU: pp 472–484, 489–530, 600–605, 623–626	Participation in Discussions Hmwk #4 - 8%
6	<ul style="list-style-type: none"> <li>Managing Devices</li> <li>Security</li> </ul>	USAH: Ch 7 and Ch 8 UPU: pp 641 – 643 USAH: Ch 21	Participation in Discussions Hwk #5 - 9%
7	<ul style="list-style-type: none"> <li>Networking</li> </ul>	UPU: Ch 9 (review) USAH: Ch 13 and Ch 14	Participation in Discussions Hmwk #6 - 9%
8	<ul style="list-style-type: none"> <li>System Backup &amp; System Logs</li> </ul>	USAH: Ch 10 and Ch 11	Participation in Discussions Final Exam - 20%
<b>Total</b>			<b>100%</b>

*\*Note to Classroom sections only:* Exact dates for reading assignments and programming assignments may be one week earlier or later than indicated in the above grid. Your facilitator's syllabus, handed out the first night of class, will indicate any changes.

### Summary of Assignments and Percentage Weight towards course grade

Assignment	Value (percent of overall course grade)
<b>Homework Assignments (6)</b>	
Homeworks 1-4 (8% each)	32 %
Homeworks 5-6 (9% each)	18 %
<b>Homework Total</b>	<b>50 %</b>
Midterm Exam	20 %
Final Exam	20 %
Participation/Forum	10 %
<b>Totals</b>	100 %

### Course Policies and Procedures:

#### Homework Assignments

Each homework assignment will cover concepts discussed in the book and class. The percentage of the grade allocated to each homework assignment is an indication of the relative effort required.

#### Academic Integrity

Plagiarism includes work obtained from any person or from any internet web source. In CS468, all work submitted must be your own.

#### CC&IS Grading Scale

Letter Grade	Percentage	Grade Point
A	93 to 100	4.00
A-	90 to less than 93	3.67
B+	87 to less than 90	3.33
B	83 to less than 87	3.00
B-	80 to less than 83	2.67
C+	77 to less than 80	2.33
C	73 to less than 77	2.00
C-	70 to less than 73	1.67
D+	67 to less than 70	1.33
D	63 to less than 67	1.00
D-	60 to less than 63	.67
F	Less than 60	0

*Additional information about grading can be found in the latest edition of the University Catalog, available at*

<http://www.regis.edu/Academics/Course%20Catalog.aspx>.

## CC&IS Policies and Procedures

Each of the following CC&IS Policies & Procedures is incorporated here by reference. Students are expected to review this information each term, and agree to the policies and procedures as identified here and specified in the latest edition of the University Catalog, available at <http://www.regis.edu/Academics/Course%20Catalog.aspx> or at the link provided.

- The CC&IS Academic Integrity Policy.
- The Student Honor Code and Student Standards of Conduct.
- Incomplete Grade Policy, Pass / No Pass Grades, Grade Reports.
- The Information Privacy policy and FERPA. For more information regarding FERPA, visit the [U.S. Department of Education](http://www.ed.gov).
- The HIPAA policies for protected health information. The complete Regis University HIPAA Privacy & Security policy can be found here: <http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx>.
- The Human Subjects Institutional Review Board (IRB) procedures. More information about the IRB and its processes can be found here: <http://regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx>.

The CC&IS Policies & Procedures Syllabus Addendum summarizes additional important policies including, Diversity, Equal Access, Disability Services, and Attendance & Participation that apply to every course offered by the College of Computer & Information Sciences at Regis University.

A copy of the CC&IS Policies & Procedures Syllabus Addendum can be found here: <https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx>.